SYSTEM FOR ROUTING DATA VIA THE BEST COMMUNICATIONS LINK BASED ON DATA SIZE, TYPE AND URGENCY AND PRIORITY

FIELD OF THE INVENTION

[0001]   This invention relates to a method for routing data over a cellular or electronic network, and more specially to a method for routing data via the best communications link based on data size, type and urgency and priority.

BACKGROUND OF THE INVENTION

[0002]   The electronic communication today is comprised of groups of networks each running independently. Networks build their own routing algorithm and exchange routing information among theses various different systems. Many routing decisions result from breaking ties or the enforcement of routing policy by the customers, who attempt to balance load across available capacity. The quest for software platform that is able to deliver rich interactive, device integrated wireless information and applications is still in progress.

[0003]   Ideally, such a data routing system should enable carriers, hardware manufactures, application and content developers to deliver interactive content and applications to customers. Furthermore, it should provide client-server interactivity to major existing and next generation wire or wireless operating system, including PocketPC, SmartPhone, Symbian, Java, PalmOS, BREW, and more. In short, a data delivery software platform aims to make it possible for data and application to be delivered on demand across various devices in wire or wireless communication.

[0004]   Among them, the first issue to be addressed, is a method for delivering data over a cellular or electronic network using the most appropriate network protocol. The data is delivered using the cellular network dial-up protocol, internet

protocol, short messaging protocol or multi-media messaging protocol, depending on the size of the data, the type of the data, the urgency of the data and the type of client computing device. A server or plurality of servers routes the data to the appropriate communications networks and protocol. A client or plurality of clients receives the data. The client can be a phone, a personal digital assistant or portable computing device that has a communication link.

SUMMARY OF THE INVENTION

[0005]   The present invention provides a method for delivering data over a cellular or electronic network using the most appropriate network protocol. The data is delivered using the cellular network dial up protocol, internet protocol, short messaging protocol or multi-media messaging protocol, depending on the size of the data, the type of the data, the urgency of the data, the priority of the data and the type of client computing device. In this invention, a server or plurality of servers routes the data to the appropriate communication network and protocol. A client or plurality of clients receives the data. The client can be a phone, a personal digital assistant or portable computing device that has a communication link.

[0006]   The present invention will become more obvious from the following description when taken in connection with the accompanying drawings which show, for purpose of illustration only, a preferred embodiment in accordance with the present invention.

BRIEF DESCRIPTION OF THE DRAWINGS

[0010]   The foregoing aspects and many of the attendant advantages of this invention will become more readily appreciated as the same becomes better understood by reference to the following detailed description, when taken in conjunction with the accompanying drawings, wherein:

2

FIG. 1 is a pictorial representation of an example for data sending from the platform server to the platform client of the present invention;

FIG. 2 shows an algorithm flow chart for data sending from the platform server to platform client that may be used in the present invention; and

FIG. 3 is a pictorial representation of an example for data sending from the platform client to the platform server of the present invention.

DETAILED DESCRIPTION OF THE INVENTION

[0011] The present invention provides a method for delivering data over a cellular or electronic network using the most appropriate network protocol. The data is delivered using the cellular network dial up protocol, internet protocol, short messaging protocol or multi-media messaging protocol, depending on the size of the data, the type of the data, the urgency of the data, the priority of the data and the type of client computing device. The data routing in the system can be roughly divided into two types. The first one is the data routing from platform server to platform client, while the other one is the reverse data routing from platform client to platform server. The priority for sending data between the two platforms mainly depends on an appropriate protocol to decide which protocol can be used for delivering application or data.

[0012] In this invention, as shown in Figure 1, when sending data 120 from the platform server 101 to platform client 103, data 120 can be sent using the four optional protocols and networks: 1. Internet Protocol 113. 2. Dial up modem 111. 3. short messaging service (SMS) 117. 4. multimedia messaging service (MMS) 115.

[0013] The platform server 101 decides which protocol to send data to the platform client 103. The routing algorithm determines the routing based on the data size, the

3

transmission speed of the communication link, and the priority of the data, as shown in figure 2.

[0014] Step 201 is a step to determine the availability of a cellular communication link. If it exists, a further checking on the size of message data (step 203) is performed; otherwise, the server cannot push the sending of data to client. In this case, the client must poll for data (step 202). Step 203 determines the data size. If the size of the data is smaller than 900 bytes, and the priority of the message is urgent (step 204), the data is sent to the platform client via modem dial-up, as step 206 shows. If the priority of the message is normal, the message is sent to the client platform via short messaging system (SMS), as step 205.

[0015] If the size of the data is larger than 900 bytes, but less than X bytes, the algorithm performs step 207 to check the maximum speed of the cellular communication link. When the maximum speed is less than 56kbps, the message is sent via modem dial up (step 208); otherwise, a further checking on the communication protocol is performed (step 209). If the communication protocol is either GPRS, WCDMA, or CDMA 1xRTT, the message is sent via modem dial-up (step 210);otherwise, step 211, the user polling step must be performed.

[0016] If the data size if larger than X bytes, the algorithm performs step 212 to check the maximum speed of the cellular communication link. When the maximum speed is no more than 28.8kbps, the link is too slow for sending data. In this case, the user must use other suitable client to retrieve data; otherwise, a further checking on the communication protocol is performed (step 214). If the communication protocol is either GPRS, WCDMA, or CDMA 1xRTT, a notification message containing how to retrieve the full message is sent via short messaging system (step 216) to the client, otherwise, step 215 is performed. On receiving the notification message, the client

4

uses a high-speed broadband connection, such as internet protocol, to retrieve the full message.

[0017] On the other hand, when sending data 320 from platform client 303 to platform server 301, data 320 can be sent either by Internet protocol 305 or Dial-up modem 307 as shown in Figure 3. The platform server 301 decides which protocol to send data to the platform client 303. The routing algorithm is much simpler than the aforementioned protocols.

1.If the platform client 303 has a communication link that supports 2.5 generation or better cellular communication link, with GPRS, WCDMA, or CDMA 1x RTT or better, the platform client 303 uses Internet protocol 305 to send data to platform server 301.

2.If the platform client 301 does not have communications link that supports 2.5 generations or better cellular communication link, such as GPRS, WCDMA, or CDMA 1xRTT or better, the platform client 303 uses dial-up modem 307 to send data to the platform server 301.

[0018] While the preferred embodiment of the invention has been illustrated and described, it will be appreciated that various changes can be made therein without departing from the spirit and scope of the invention.